

## ABSTRACT

An integral storage-collector solar water-heating system is disclosed. The system includes a tank and two absorbers, wherein the entire system is full of water. The water circulation goes from the bottom of the tank through a fine-tube absorber plate, which is located between a transparent cover exposed to the sun and an insulated plate. The heated water passes through a second absorber that heats them to a usage temperature and cause them flows into the tank's space. The second absorber is created between the exposed wall of the tank, by a grid of tunnels that are grooved in a thermally insulated layer that are attached to the inside walls of the tank. The second absorber is covered with transparent cover too. The water flow into the upper part of the tank and a thermo-siphon valve prevents the back flow. After a double heating, the water is stored inside the tank and ready for use.

The system can also have an electrical heating option, a flexible turbolator in the fin-tube absorber to be shrunk in case of freezing and flexible means inside the tank for the same purpose.